



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/522,669

01/12/2006

Naoki Matsuyama

Q85994

8583

65565 7590 02/18/2011
SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

JOYCE, WILLIAM C

ART UNIT

PAPER NUMBER

3656

NOTIFICATION DATE

DELIVERY MODE

02/18/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SUGHRUE265550@SUGHRUE.COM
USPTO@SUGHRUE.COM
PPROCESSING@SUGHRUE.COM

Office Action Summary	Application No. 10/522,669	Applicant(s) MATSUYAMA ET AL.	
	Examiner William C. Joyce	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 107-111 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 5-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 107-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the communication filed December 2, 2010 for the above identified patent application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 107, 108, and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stitz et al. (USP 5,711,615).

Stitz et al. disclose a spindle unit comprising: a rolling bearing including an outer ring (20) having an outer ring raceway on an inner peripheral surface, an inner ring (21) having an inner ring raceway on an outer peripheral surface, and rolling elements (5) provided rollably between the outer ring raceway and the inner ring raceway, whereby a spindle is borne rotatably in a housing; and a lubricant supply system (2) for supplying a lubricant to an inside of the rolling bearing; wherein the lubricant supply system supplies the lubricant in a predetermined amount in one shot.

Stitz et al. does not appear to specifically disclose the lubricant as a grease, but discloses the lubricant can be a solid, a pasty, or liquid. It was notoriously known

Art Unit: 3656

in the art to use grease as a lubricant for a bearing. It would have been within the ordinary skill in the art to configure the lubricant system of Stitz et al. with grease, since it was well known to use grease to reduce friction in a bearing device.

Stitz et al. does not disclose the claimed amount of lubricant to be supplied to the bearing, but teaches the importance of providing an optimal amount of lubricant based on bearing conditions for a particular application. For example, the amount of lubricant depends of rotational speed, bearing temperature, bearing load, bearing vibration, and so on (for example, see last paragraph of column 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the lubricant system of Stitz et al. to supply between 0.004 cc and 0.1 cc of lubricant to the bearing, motivation being to optimize the bearing performance for a particular application. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the bearing with the claimed amount of lubricant, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claim 107 and 108, Stitz does not appear to disclose the bearing arrangement used in combination with a motor or a tool spindle. However, using

Art Unit: 3656

a bearing for supporting a high speed motor shaft or a tool spindle was notoriously known in the art. It would have been obvious to one of ordinary skill in the art to use the bearing arrangement of Stitz in either a motor spindle or a tool spindle, motivation being to support the shaft/spindle for rotation with reduced friction.

3. Alternatively, claims 1-2, 4, 107, 108, and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stitz et al. (USP 5,711,615) in view of Sugiyama (JP 2002-130589).

As described above, Stitz et al. discloses a bearing lubrication arrangement, wherein the lubricant can be a solid or a paste (see above).

It would have been within the ordinary skill in the art to configure the lubricant system of Stitz et al. with grease, since it was well known to use grease to reduce friction in a bearing device.

Stitz et al. does not disclose the claimed amount of lubricant to be supplied to the bearing, but teaches the importance of providing an optimal amount of lubricant based on bearing conditions for a particular application. For example, the amount of lubricant depends of rotational speed, bearing temperature, bearing load, bearing vibration, and so on (for example, see last paragraph of column 5).

Art Unit: 3656

Sugiyama discloses a spindle unit comprising: a lubricant oil supply system for supplying a lubricant oil to an inside of the rolling bearing; wherein the lubricant supply system supplies the lubricant oil such that a supply amount in one shot is set to 0.0005 cc to 0.01 cc.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the amount of lubricant grease of Stitz et al. to supply the lubricant in one shot in the amount of 0.0005 cc to 0.01 cc, as taught by Sugiyama, motivation being to optimize the performance of the bearing for a particular application.

With respect to claim 107 and 108, Stitz does not appear to disclose the bearing arrangement used in combination with a motor or a tool spindle. However, using a bearing for supporting a high speed motor shaft or a tool spindle was notoriously known in the art. It would have been obvious to one of ordinary skill in the art to use the bearing arrangement of Stitz in either a motor spindle or a tool spindle, motivation being to support the shaft/spindle for rotation with reduced friction.

4. Alternatively, claims 1, 2, 4 and 107-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in Figures 113-121 and in pages 1-11 of the Specification.

Art Unit: 3656

For example, Figure 15 of AAPA teaches a bearing lubrication arrangement having a grease (1669) a ball bearing having a lubrication opening (1667) formed in the outer ring, the opening is located in an area other than the raceway groove.

The lubrication arrangement of Figure 15 does not disclose the claimed amount of lubricant to be supplied to the bearing. Sugiyama discloses a lubricant oil supply system for supplying a lubricant oil to an inside of the rolling bearing; wherein the lubricant supply system supplies the lubricant oil such that a supply amount in one shot is set to 0.0005 cc to 0.01 cc.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the amount of lubricant grease of AAPA to supply the lubricant in one shot in the amount of 0.0005 cc to 0.01 cc, as taught by Sugiyama, motivation being to optimize the performance of the bearing for a particular application.

In the written disclosure, applicant discloses that it was known to use a lubricated bearing for a tool spindle. It would have been obvious to one of ordinary skill in the art to use the bearing arrangement of AAPA in either a motor spindle or a tool spindle, motivation being to support the shaft/spindle for rotation with reduced friction.

Response to Arguments

5. Applicant's arguments with respect to claim 1 and 110 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/
Primary Examiner, Art Unit 3656